

REMARKS

The Office Action of December 24, 2009 has been reviewed and the comments therein carefully considered. For the foregoing reasons, Applicant respectfully traverses the rejections set forth therein. Accordingly, reconsideration of the outstanding rejections and allowance of pending claims 31-34, 37-39 and 41-42 are respectfully requested.

Claims 31-34, 37-39 and 41-42 stand rejected under 35 U.S.C. §102(b) for anticipation by U.S. Patent No. 6,113,746 to Hack et al. or U.S. Patent No. 6,264,801 to Hack et al., both of which have the same disclosure. Applicant traverses this rejection.

Claim 31, the sole pending independent claim, is directed to a paramagnetic silver powder having paramagnetism at an absolute temperature of 20K or higher, a positive mass magnetization in an external magnetic field of 4,000 Oe or greater, and a coercive force of 5 Gauss or less.

Hack relates to coating a substrate surface with an amorphous thin film, which is generated in a series of vaporization-deposition reactions carried out by repeating a process of vaporizing and depositing some of the substrate materials using the spark process for a very short time. (Hack '746, col. 3, lines 23-24; "Spark processing is a technique that forms a magnetic thin surface layer...."). The resulting thin film has magnetism different from that of the bulk materials. Therefore, Hack relates to thin film fabrication, not powder fabrication, and is limited to transforming magnetism through the production of a thin film by generating a spark on a part of a conductor or semiconductor wafer surface. Thus, Hack does not anticipate the pending claims which are directed to paramagnetic silver powder.

Moreover, reliance in the Office Action on the inherent properties of the material described in Hack premised on the apparent similarities between the method of Hack and the method described in the subject application is misplaced. The method by which the claimed powders are produced is different from the processing in Hack. While the claims are not limited to a particular method of manufacture, this distinction provides evidence that reliance on an inherency argument is improper since "[i]nherency...may not be established by probabilities or possibilities." *In re Robertson*, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999); M.P.E.P. §2112.

The general method by which the claimed paramagnetic silver powders are produced is described on pages 11-12 of the specification, as filed, with a more detailed description and working examples provided on pages 18-21. In general, the process of producing the claimed powder includes generating argon plasma, producing silver metal plasma by reacting the argon plasma with silver powder, and rapidly cooling the silver metal plasma gas below room temperature under vacuum. (*See* Specification, pages 11-12). On the other hand, in Hack, gas ions are accelerated by a spark and impacted with the surface of a cathode substrate to evaporate a certain volume of the cathode substrate material in flash evaporation. (Hack '746, col. 4, lines 31-39.) The substrate material itself is not formed into plasma in Hack. In addition, Hack discloses that the frequency of the sparks is between about 1,000 and 30,000 Hz. (Hack '746, col. 4, lines 3-5.) Consequently, the cooling of the evaporated substrate between spark cycles occurs in the range of 0.0000033 and 0.001 seconds. The subject application describes a cooling period on the order of a millisecond or more. (*See, e.g.*, Specification, page 14.) The cooling process in the subject application helps control the size and shape of the powders. (*Id.*) These clear differences in the manufacturing methods weigh against a finding that the claimed properties of the claimed paramagnetic silver powder are inherently present in Hack's thin film.

Thus, because Hack fails to teach, disclose or suggest the silver powder defined in claim 31, or the claims which depend therefrom, Applicant respectfully requests that the outstanding rejection of claims 31-34, 37-39 and 41-42 under 35 U.S.C. §102(b) be reconsidered and withdrawn.

Claims 31-34, 37-39 and 41-42 stand rejected under 35 U.S.C. §102(a) or §102(e) for anticipation by U.S. Patent Application Publication No. 2004/0219361 to Cui et al. Applicant traverses this rejection.

Cui is directed to a core/shell composite particle that purportedly has super-paramagnetic properties. (Cui, ¶ 0010.) The core of the composite consists of magnetic metals, such as iron oxide or other ferric oxides, while the shell consists of gold, silver, or other noble metals. *Id.* The method of producing the composite particles in Cui includes reducing a noble metal salt with hydroxylamine in the presence of Fe₃O₄ particles as seed. (Cui, ¶ 0011.) The composite particles purportedly retains the benefits of the magnetic iron oxide particles (*i.e.*,

readily separable under the action of a magnetic field). (Cui, ¶ 0023.) Other than the purported super-paramagnetism of the composited particles, which is apparently provided by the magnetic iron oxide core (*see* Cui, ¶ 0004, “particles with nanometer size such as iron oxide are super-paramagnetically and magnetically responsive”), Cui offers no discussion as to the magnetic properties of the composite particles, and particularly no discussion of the positive mass magnetization or the coercive force. Moreover, given the discussion that the paramagnetism is provided by the composition of the core, the silver or gold shell does not appear to possess any nonconventional magnetic properties. As Applicant has previously explained, silver is typically diamagnetic. (*See* Amendment of Feb. 17, 2009, pg. 6.) Instead, it appears the silver or gold shell is used to provide visualization characteristics helpful in bio chip or immunoassay processes. (Cui, ¶ 0023.)

The claimed invention is a paramagnetic silver powder having paramagnetism at an absolute temperature of 20K or higher, a positive mass magnetization in an external magnetic field of 4,000 Oe or greater, and a coercive force of 5 Gauss or less. This is distinct from a shell/core composite particle like in Cui where the core is certainly not silver, but instead is an inherently paramagnetic material such as iron oxide. Such a composite core/shell powder cannot fairly be interpreted as a silver powder. Moreover, there is nothing to suggest that the composite particle of Cui would exhibit the positive mass magnetization and coercive force required by the claim. Given the widely divergent methods of manufacturing the claimed silver powder and the composite particle of Cui, it is not fair to assume the two have similar magnetic properties. (*Compare* Specification, pages 11-12 *with* Cui, ¶¶ 0011-0014.)

Accordingly, Applicant respectfully requests that the rejection of claims 31-34, 37-39 and 41-42 under 35 U.S.C. §102(a) or §102(e) for anticipation by Cui be reconsidered and withdrawn.

Claims 31-34, 37-39 and 41-42 stand rejected under 35 U.S.C. §102(b) for anticipation by U.S. Patent Application Publication No. 2003/0025102 to John et al. as evidenced by the article “Nanostructure and paramagnetic behaviour of NiZn ferrite spherical particles” by Nam et al. in a 2004 issue of Applied Research. This rejection is traversed.

John is directed to a magneto sensitive fluid composition. (John, Abstract.) The Office Action points to Working Example I of John which shows a powder blend comprising iron, nickel-ferrite, and silver powder. The Office Action cites the Nam article for the proposition that a nickel-ferrite powder is paramagnetic. Thus, the Office Action concludes, the powder blend of Working Example I must be paramagnetic.

However, even assuming the above is true, a powder blend that is paramagnetic and contains silver powder is not what is claimed. Instead, what is claimed is “a paramagnetic silver powder.” To the extent Working Example I shows a paramagnetic powder blend, there is absolutely no suggestion that the silver powder contained therein is, itself, paramagnetic, much less that the silver powder has the magnetic properties defined in the claim. Rather, it appears the silver powder is conventional silver powder. As previously explained, silver is typically diamagnetic. (See Amendment of Feb. 17, 2009, pg. 6.) Reliance on the Nam article only confirms that the paramagnetic properties of the powder blend of Working Example I (if any exist) come from the presence of the nickel-zinc ferrite, not the silver powder. No reasonable interpretation of claim 31, in view of the specification, could lead to the conclusion that the claim is directed to a powder blend including conventional silver powder. Instead, claim 31 is clearly directed to a paramagnetic silver powder, where the silver powder itself is paramagnetic and has certain defined magnetic properties.

Thus, Applicant respectfully submits that the rejection based on John and the Nam article should be reconsidered and withdrawn.

Claims 31-34, 37-39 and 41-42 stand rejected under 35 U.S.C. §102(b) for anticipation by the article titled “Studies on the Surface Interaction and Disperity of Silver Nanoparticles in Organic Solvents” by Zeng et al. in a 2000 issue of Chinese Physics Letters. This rejection is traversed.

Zeng is directed to silver nanoparticles that have been surface modified by capping with dodecyl mercaptan. (Zeng, Abstract.) This coating applied to the silver nanoparticles alters the electron state of the silver particles. On the other hand, the claimed invention is directed to a paramagnetic silver powder that has specific magnetic characteristics defined in the claims.

The Office Action summarily concludes that the magnetic properties of the coated nanoparticles of Zeng inherently meet the defined properties of the claimed silver powder. The Office Action does not provide any support for this conclusion, and instead shifts the burden to Applicant to disprove the existence of these properties in the Zeng nanoparticles. However, the Patent Office is under the initial burden to provide a factual basis or technical reasoning as to why a certain claimed property would be inherently present in the prior art composition. M.P.E.P. §2112, subpart IV. In satisfying this burden, certain assumptions can be made, such as that identical compositions will behave the same or identical methods of manufacture will produce the same compositions. *Id.* This burden cannot, however, be satisfied by speculation or conjecture. *Id.*

Given the clear differences between the manner in which the silver nanoparticles of Zeng are modified (*i.e.*, through surface coating) and the manner described in the subject application for achieving paramagnetic silver powders such as those defined in the claim (*e.g.*, argon plasma reaction scheme without any suggestion of surface coating), Applicant submits that it is improper conjecture to assume the magnetic properties will be the same between the two. Accordingly, the inherency position taken in the Office Action is not based on fact or technical reasoning and is thus inappropriate.

Therefore, Applicant respectfully submits that the rejection of claims 31-34, 37-39 and 41-42 under 35 U.S.C. §102(b) for anticipation by the Zeng article should be reconsidered and withdrawn.

Double Patenting

Applicant acknowledges the provisional obviousness-type double patenting rejection of claims 31-34, 37-39 and 41-42 based on claims 10, 12, 13, 22, 24 and 25 of co-pending U.S. Patent Application No. 11/821,796. Applicant also notes that the subject application has a filing date that precedes the filing date of U.S. Patent Application No. 11/821,796. According to Section 804 of the M.P.E.P., “[i]f a ‘provisional’ nonstatutory obviousness-type double patenting (ODP) rejection is the only rejection remaining in the earlier filed of the two pending applications, while the later-filed application is rejectable on other grounds, the examiner should withdraw that rejection and permit the earlier-filed application to

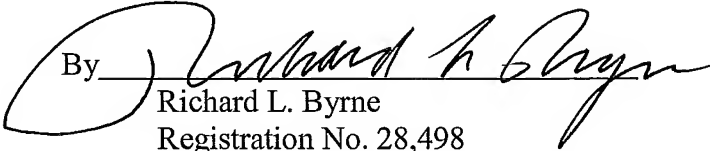
Application No. 10/588,135
Paper Dated: April 26, 2010
In Reply to USPTO Correspondence of December 24, 2009
Attorney Docket No. 5038-061693

issue as a patent without a terminal disclaimer.” M.P.E.P. §804, subpart I.B.1. Thus, Applicant will revisit the double patenting rejection, to the extent necessary, once this is the only rejection remaining in the application.

CONCLUSION

For the foregoing reasons, Applicant submits that the pending claims are patentable over the cited art of record and are in condition for allowance. Accordingly, reconsideration of the outstanding rejections and allowance of pending claims 31-34, 37-39 and 41-42 are respectfully requested.

Respectfully submitted,
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